

12 Concrete Specifications

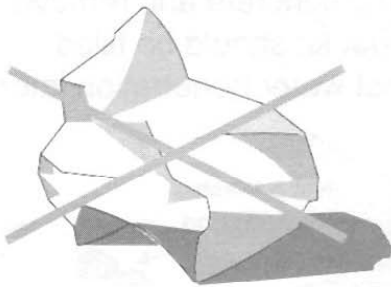
Size and Type of Concrete "Aggregate"

Aggregate refers to the rocks and stones in the concrete. Concrete suppliers must receive clear instructions on the proper aggregate size and type. Smooth aggregate of 1/2 to 3/4-inch is recommended.

"Be Prepared"

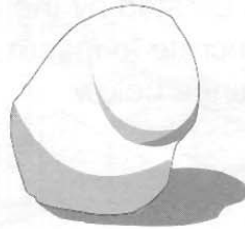
Dressing properly will help make any project go better! Be sure everyone has appropriate clothing and safety equipment.

Sharp Aggregate



NO

Smooth Aggregate



YES

Safety
Glasses

Hard
Hat



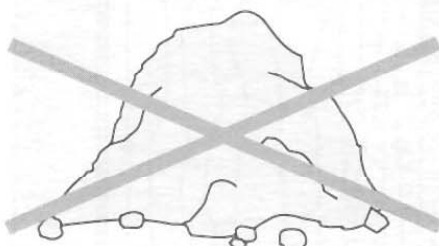
Waterproof
Boots or
Shoes

Good
Work
Gloves

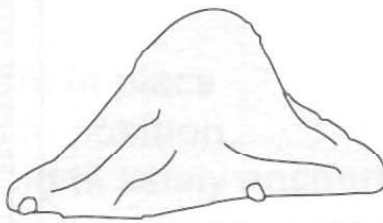
Large, sharp-edged aggregate increases the chance of concrete to lodge or get plugged in the form.

Proper Consistency of Concrete "Slump"

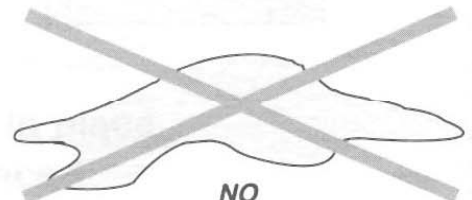
Slump refers to how thick or thin the concrete mixture is. Very thick concrete doesn't fill the forms well and may cause voids. Very thin concrete pours well but increases form pressure and may lead to blowouts. Concrete should be ordered with a 4 to 6-inch slump.



NO



YES



NO

Concrete Specifications *continued*

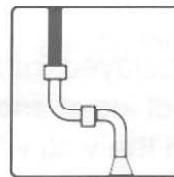
Placing the Concrete with a Pump

Concrete is often placed in the insulating form walls with a concrete pump. To minimize the risk of form failure, **the discharge pressure from the pump hose should be reduced**, by using one of the following techniques. Most pump operators are familiar with these techniques and can provide the necessary accessory, if they are notified, in advance.

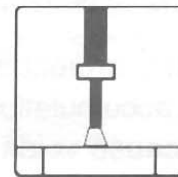
90-Degree Elbows - This 2-elbow accessory is attached to the pump's delivery hose to reduce discharge volume and pressure.

Hose Reducer - A 3-inch reducer is attached to the pump's delivery hose. The 3-inch discharge hose reduces the concrete's discharge pressure.

Hose Harness - If the 90-degree elbow or hose reducer is not available, the discharge hose can be fitted with a rope or strap harness to bend it so that concrete is **not discharged straight down**, into the form. The hose is diverted and allows the concrete to fall naturally.



90°
Elbows

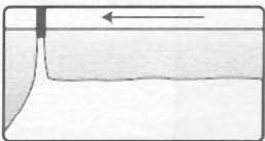


3-inch
Hose Reducer

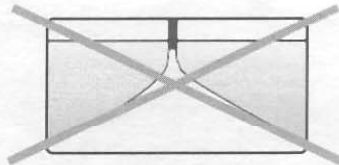


Rope or Strap
Hose Harness

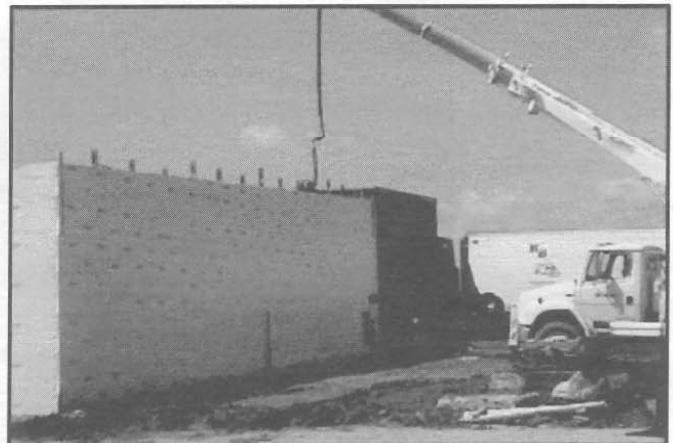
Lifts - Place concrete in lifts **not to exceed a height of 4-feet**, with no more than 8-feet of concrete placed vertically in one hour. This rate must be followed, regardless of how concrete is placed into the form. Placing concrete in lifts **over 4-feet per lift** can cause immediate form failure (blow-outs).



Move Around the form
in the **same direction**,
for each lift



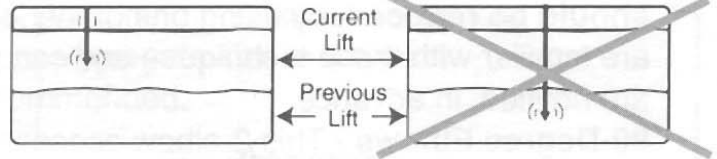
Do NOT Stay in
One Spot and Pour



Concrete Specifications *continued*

d. Do **NOT** pour into forms which are over 12-feet tall. If total wall is to exceed 12-feet, stage the project as two separate pours with reinforcing steel placed across the cold joints.

e. **Only experienced operators should be allowed to use an electric vibrator with 1-inch head to consolidate concrete. Concrete can also be consolidated from the outside by tapping the tie pads with a rubber mallet.**



Do NOT Extend Vibrator Into Level of Previous Lift.
Doing so can Cause Immediate Form Failure.

f. If a winter project is delayed for several days, assembled forms should be covered to avoid the accumulation of ice or snow at the bottom of the form. If this debris is not removed, they will cause voids in the wall when the concrete is placed.

Form Settling

As concrete is being placed, a small amount of settling or compacting of the forms may occur. This is due to the downward pressure (by the concrete) on the plastic spacer ties and steel rebar.

An 8-foot high form can settle 1/4 to 1/2-inch after concrete is placed. This minor difference in height is not a problem on most projects. If minor differences in height or accuracy are critical, allowance should be made prior to placement of concrete.

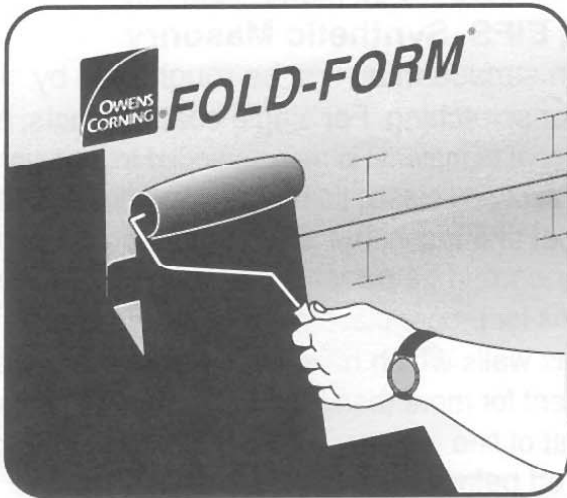


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Exterior Finishing

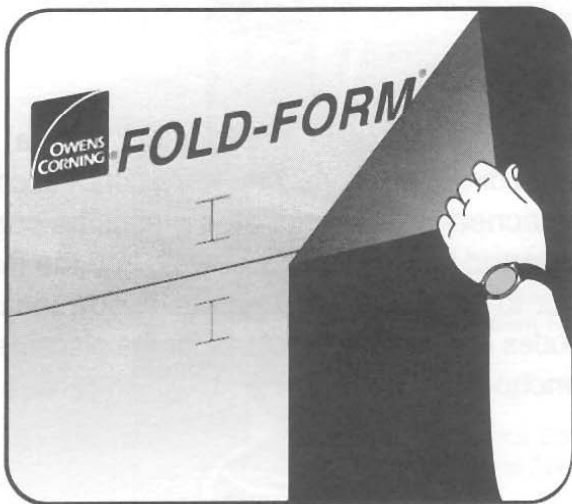
Below Grade Finishing

Local building codes may require different treatments.
Follow manufacturer's directions for all products.



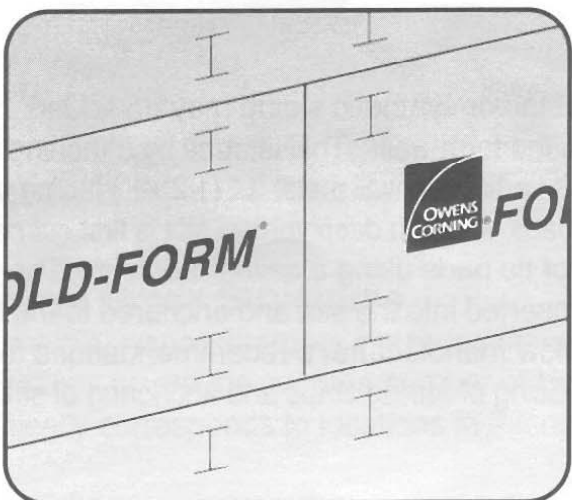
Damproofing

Select only latex or low-solvent liquid damproofing which is approved for application directly onto rigid polystyrene insulation. Apply a liberal coating directly onto the form, sealing the seams in the form wall.



Waterproofing

Self-adhesive membranes (minimum 60 mil thickness) or approved liquid waterproofing materials can be applied directly to the form walls. Follow manufacturer's recommendations for application directly onto rigid polystyrene insulation.



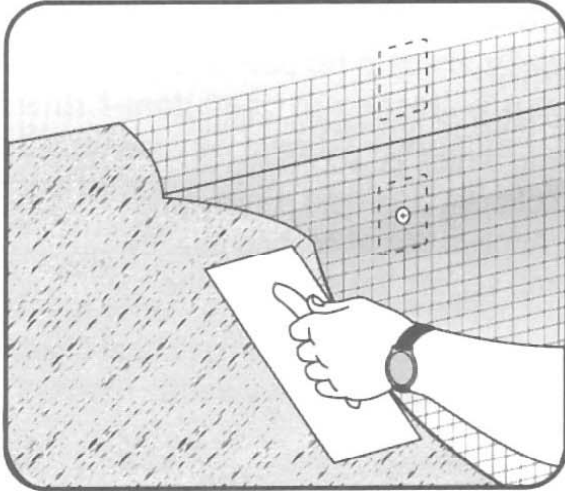
Concealed Tie Location

The end of each folding spacer tie is concealed within the foam wall and has a tab end, 1 ¼-inch wide x 2 ⅛-inches tall. The location of each concealed tab is shown by an "I" symbol, embossed on the form wall. If drywall screws or threaded fasteners are being used to attach light and medium weight finishes, they can be anchored to these concealed spacer tabs. Do not use smooth nails or staples to anchor materials to the tabs.

Exterior Finishing *continued*

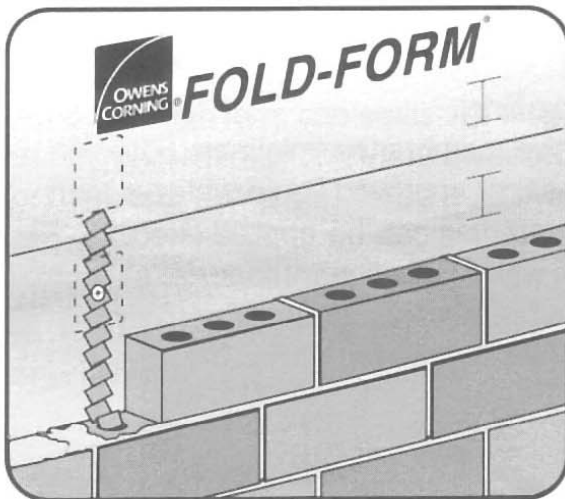
Above Grade Finishing

To prevent possible degradation, any special-use plastic ties which are exposed should be shielded from direct sunlight within 60 days. They can be covered with latex paint or the exterior finish selected for the project.



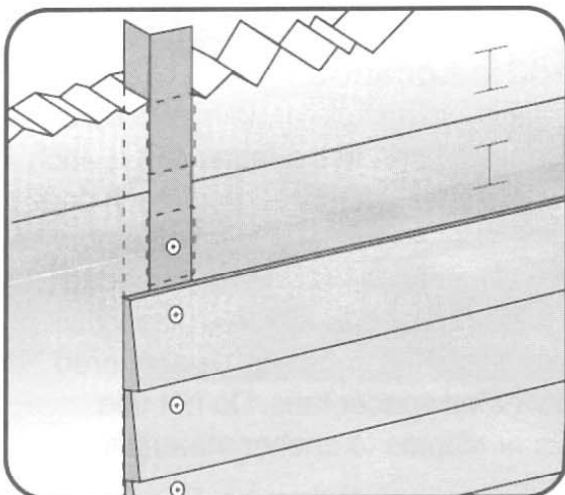
Stucco, EIFS, Synthetic Masonry

Insulation surface must first be roughened by sanding or scratching. For single coat products, a generous coat of material is recommended to thoroughly cover the exposed plastic tie pads. For products having a base coat and mesh, the mesh is anchored directly to the concealed tie pads. Follow manufacturer's instructions for proper placement, temperature control, etc. Forms walls which have been exposed to the environment for more than 90 days will normally have a light coat of fine "powder" which must be thoroughly brushed off before applying finish.



Brick

With a concrete brick ledge, brick veneer (fascia) can be added directly over the form walls. Brick anchors may be attached to the concealed plastic tie pads or may be inserted through the form wall, into the form cavity, prior to placement of concrete. Follow local building codes or accepted practices for the placement of brick anchors.



Siding

Wood, metal, or synthetic siding may be added directly to the form walls. This is done by attaching a continuous vertical drywall metal "L" (1/2"x1") furring strip to the tie pads. A 1-inch deep vertical slot is first cut next to a row of tie pads using a saw or hot knife. The "L" angle is inserted into the slot and anchored to the tie pads. Follow manufacturer's recommendations for proper spacing of furring strips and anchoring of siding

14 Interior Finishing

Electrical/Plumbing Lines

Follow local codes for the types of electrical and plumbing components which are acceptable for the project.

Electrical and plumbing lines are concealed in the insulation by cutting or carving a pathway approximately 1½-inches deep with a saw, router, or electric hot knife. For junctions or switch boxes, insulation is completely removed and items are anchored directly into the concrete. Electric lines can be protected by running them inside approved metal or plastic conduit. Damage to lines can also be avoided by covering the pathway with a 16-gauge metal strip, approximately 2-inches wide, anchored to the concealed tie pads with a drywall screw. (diagram 13-1)

Electric lines can be held to the back of the pathway by using approved electrical anchors or expandable insulation placed approximately 2-feet apart.

Drywall

Drywall is attached with drywall screws anchored into concealed tie pads, every 16-inches on center. Typically, a vapor barrier is not required, behind drywall. (diagram 13-2)

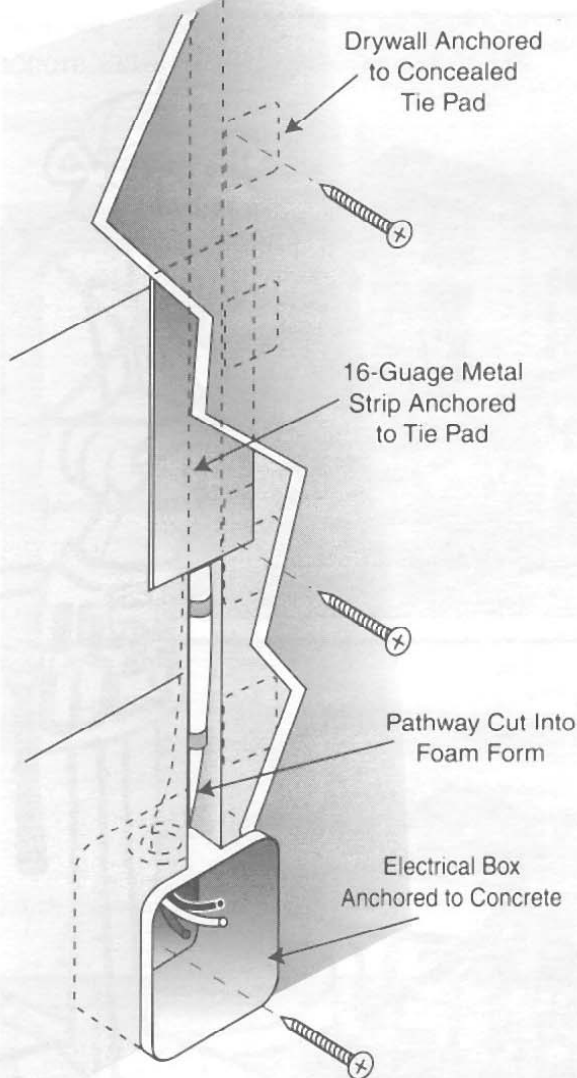


diagram 13-1

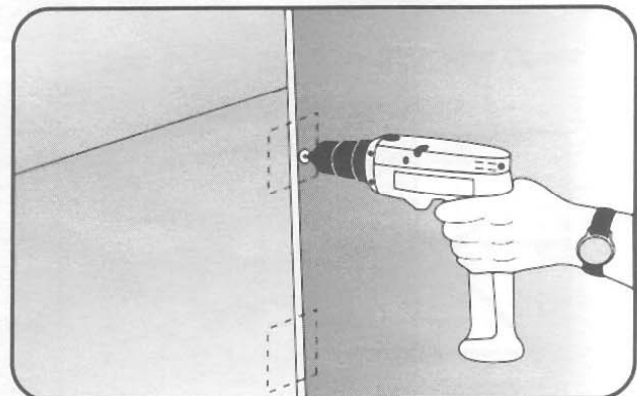


diagram 13-2

Above Grade Structures

Generally, vapor retarders are recommended between the drywall (sheetrock) and the form, in locations where the average number of Heating Degree Days (base 65) are 7,000 or more. This typically corresponds to locations in the northern 1/3 of the United States and north.